

The Claims

1. (Currently Amended) A system for performing a hand-off between two internet protocol (IP) core networks in ~~the wireless~~ a wireless domain, comprising:

a source mobility control function (MCF) within a source IP core network, the source IP core network coupled to a source access network providing service to a mobile unit;

the source MCF coupled to a source bearer path gateway (BPGW), the source BPGW being within the source IP core network and operable to communicate bearer traffic associated with the mobile unit between the source access network and a public switched telephone network (PSTN) gateway within the source IP core network, the PSTN gateway operable to communicate the bearer traffic between the source BPGW and a PSTN coupled to the source IP core network;

the source MCF being functionally separate from a call agent (CA) within the source IP core network, the CA coupled to the source BPGW and operable to set up a first segment of a bearer path for the bearer traffic between the source BPGW and the PSTN gateway;

the source MCF operable to set up a second segment of the bearer path for the bearer traffic between the source access network and the source BPGW;

the source MCF further operable to take down the second segment and set up third and fourth segments of the bearer path for the bearer traffic in response to the mobile unit entering a service area of a target access network coupled to a target IP core network, the third segment being between the source BPGW and a target BPGW within the target IP core network, the fourth segment being between the target access network and the target BPGW, the target BPGW operable to communicate the bearer traffic between the target access network and the source BPGW, resulting in a hand-off between the source IP core network and the target IP core network in the wireless domain.

2. (Currently Amended) The system of Claim 1, wherein the source MCF is further operable to request a target MCF coupled to the target BPGW to set up ~~a fourth~~ the fourth segment of the bearer path for the bearer traffic between the target access network and the target BPGW.

3. (Original) The system of Claim 2, wherein the source MCF communicates a session initiation protocol (SIP) "invite" message to the target MCF to request the target MCF to set up the fourth segment.

4. (Currently Amended) The system of Claim 1, wherein the source MCF is further operable to take down the third segment and the fourth segment and set up ~~a fourth segment~~ fifth and sixth segments of the bearer path for the bearer traffic in response to the mobile unit entering a service area of another target access network coupled to another target IP core network, the ~~fourth~~ fifth segment being between the source BPGW and another target BPGW within the other target IP core network, the sixth segment being between the other target access network and the other target BPGW, the other target BPGW operable to communicate the bearer traffic between the other target access network and the ~~other target source~~ source BPGW, resulting in a hand-off between the target IP core network and the other target IP core network in the wireless domain.

5. (Currently Amended) The system of Claim 4, wherein the source MCF is further operable to request a target MCF coupled to the other target BPGW within the other target IP core network to set up ~~a fifth~~ the sixth segment of the bearer path for the bearer traffic between the other target access network and the other target BPGW.

6. (Currently Amended) The system of Claim 5, wherein the source MCF communicates a session initiation protocol (SIP) "invite" message to the target MCF to request the target MCF to establish the ~~fifth~~ sixth segment.

7. (Original) The system of Claim 1, wherein the source IP core network supports a plurality of access networks.

8. (Original) The system of Claim 1, wherein the source access network is a third-generation (3G) radio access network (RAN).

9. (Original) The system of Claim 1, wherein the source MCF communicates signaling traffic with the CA using session initiation protocol (SIP).

10. (Original) The system of Claim 1, wherein the source MCF communicates with the source BPGW using media gateway control protocol (MGCP) to set up or take down a segment of a bearer path.

11. (Original) The system of Claim 1, wherein the bearer traffic contains voice data.

12. (Currently Amended) A system for performing a hand-off between two internet protocol (IP) core networks in ~~the wireless~~ a wireless domain, comprising:

a target mobility control function (MCF) within a target IP core network, the target IP core network coupled to a target access network;

the target MCF operable to receive a request from a source MCF within a source IP core network to set up a segment of a bearer path for bearer traffic associated with a mobile unit within a service area of the target access network, the bearer path being between the target access network and a target bearer path gateway (BPGW) coupled to the target MCF within the target IP core network and operable to communicate the bearer traffic between the target access network and a source BPGW, the source BPGW being within the source IP core network and operable to communicate the bearer traffic between the target BPGW and a source public switched telephone network (PSTN) gateway within the source IP core network operable to communicate the bearer traffic between the source BPGW and a PSTN coupled to the source IP core network;

the target MCF further operable to set up the segment in response to the request.

13. (Original) The system of Claim 12, wherein the request is a session initiation protocol (SIP) “invite” message.

14. (Currently Amended) A method for performing a hand-off between two internet protocol (IP) core networks in ~~the wireless~~ a wireless domain, comprising:

taking down a first segment of a bearer path for bearer traffic associated with a mobile unit, the first segment being between a source access network providing service to the mobile unit and a source bearer path gateway (BPGW) within a source IP core network, the source BPGW operable to communicate the bearer traffic between the source access network and a public switched telephone network (PSTN) gateway within the source IP core network, the PSTN gateway operable to communicate the bearer traffic between the source BPGW and a PSTN coupled to the source IP core network, the source IP core network coupling the source access network to the PSTN; and

setting up second and third segments of the bearer path for the bearer traffic in response to the mobile unit entering a service area of a target access network coupled to a target IP core network, the second segment being between the source BPGW and a target BPGW within the target IP core network, the third segment being between the target access network and the target BPGW, the target BPGW operable to communicate the bearer traffic between the target access network and the source BPGW, resulting in a hand-off between the source IP core network and the target IP core network in the wireless domain.

15. (Currently Amended) The method of Claim 14, further comprising requesting a target mobile control function (MCF) coupled to the target BPGW to set up ~~a third~~ the third segment of the bearer path for the bearer traffic between the target access network and the target BPGW.

16. (Currently Amended) The method of Claim 15, wherein requesting comprises communicating a session initiation protocol (SIP) "invite" message to the target MCF to request the target MCF to set up the ~~fourth~~ third segment.

17. (Currently Amended) The method of Claim 14, further comprising taking down the second segment and the third segment and ~~set up a third segment~~ setting up fourth and fifth segments of the bearer path for the bearer traffic in response to the mobile unit entering a service area of another target access network coupled to another target IP core network, the ~~third~~ fourth segment being between the source BPGW and another target BPGW within the other target IP core network, the fifth segment being between the other target access network and the other target BPGW, the other target BPGW operable to communicate the bearer traffic between the other target access network and the ~~other target source~~ source BPGW, resulting in a hand-off between the target IP core network and the other target IP core network in the wireless domain.

18. (Currently Amended) The method of Claim 17, further comprising requesting a target MCF coupled to the other target BPGW within the other target IP core network to set up ~~a fourth~~ the fifth segment of the bearer path for the bearer traffic between the other target access network and the other target BPGW.

19. (Currently Amended) The method of Claim 18, wherein requesting comprises communicating a session initiation protocol (SIP) "invite" message to the target MCF to request the target MCF to establish the ~~fourth~~ fifth segment.

20. (Original) The method of Claim 14, wherein the source IP core network supports a plurality of access networks.

21. (Original) The method of Claim 14, wherein the source access network is a third-generation (3G) radio access network (RAN).

22. (Original) The method of Claim 14, wherein the bearer traffic contains voice data.

23. (Currently Amended) A system for performing a hand-off between two internet protocol (IP) core networks in ~~the wireless~~ a wireless domain, comprising:

a source mobility control function (MCF) within a universal mobile telecommunications system (UMTS) source IP core network, the source IP core network coupled to a source third-generation (3G) radio access network (RAN) providing service to a mobile unit;

the source MCF coupled to a source bearer path gateway (BPGW), the source BPGW being within the source IP core network and operable to communicate bearer traffic associated with the mobile unit between the source access network and a public switched telephone network (PSTN) gateway within the source IP core network, the PSTN gateway operable to communicate the bearer traffic between the source BPGW and a PSTN coupled to the source IP core network;

the source MCF being functionally separate from a call agent (CA) within the source IP core network, the CA coupled to the source BPGW and operable to set up a first segment of a bearer path for the bearer traffic between the source BPGW and the PSTN gateway, signaling traffic associated with the mobile unit being communicated between the source MCF and the CA using sessions initiation protocol (SIP);

the source MCF operable to set up a second segment of the bearer path for the bearer traffic between the source RAN and the source BPGW using media gateway control protocol (MGCP);

the source MCF further operable to take down the second segment using MGCP and set up third and fourth segments of the bearer path for the bearer traffic in response to the mobile unit entering a service area of a target 3G RAN coupled to a target UMTS IP core network, the third segment being between the source BPGW and a target BPGW within the target IP core network, the fourth segment being between the target 3G RAN and the target BPGW, the target BPGW operable to communicate the bearer traffic between the target access network and the source BPGW, resulting in a hand-off between the source IP core network and the target IP core network in the wireless domain.